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EXAMINER	
LAM, DUNG LE	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/667,633	CAVE ET AL.	
	Examiner	Art Unit	
	DUNG LAM	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *45,47,48,50,51,53,54,59,61-64,69,70,74,76 and 80-88* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *45,47,48,50,51,53,54,59,61-64,69,70,74,76 and 80-88* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ___.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 45, 47-48, 50-51, 53-54,59, rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent Claims 45, 59 recites "the base station**s** that detected the sounding pulse". The limitation lacks antecedent basis. Previous limitations of the claim only mention one base station that detects the omnidirectional sounding pulse and there is no prior mention of plural "basestation**s** detecting the sounding pulse".

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 45, 47-48, 50-51, 53-54, 59, 61-64, 70, 74, 76, 81-88 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the

inventor(s), at the time the application was filed, had possession of the claimed invention.

Independent **Claim 45** recites

"…**a**. receiving from an interface in response to detecting a detected handover trigger for a mobile unit a relative location of the mobile unit with respect to the beamforming antenna of the base station;

b. directing beacon channels toward the mobile unit location to receive an omnidirectional sounding pulse

c. detecting by the base station the transmitting an omnidirectional sounding pulse from the mobile unit in response to the detected handover trigger, the mobile unit located in a geographic coverage area of the base station;"

The examiner could not find limitations **a** & **b** from the specification, nor the specific sequence order of limitations a&b occuring before limitation c.

The examiner also notes that from figures 2 and 3, the detecting of the omnidirectional pulse (Step 304-306 same as limitation c) seems to occurs prior to the step of determining the location (Step 310 of Fig. 3). However, the claim is now claiming receiving a location and then directs the beam toward the location and detects the omnidirectional pulse. Thus the examiner could not find steps a, b and c in the presented order. Applicant should point out where the sequential order of the amended limitations can be found in the specification.

Claim 59 is similarly rejected for the same reasons of lack of support for the sequence of occurrence of the amended limitations.

Regarding claim **74**, the examiner fail to find the support for the limitation "determining a relative location of the selected handover base station with respect to the beamforming antenna of the mobile unit based on the information related to the detected sounding pulse."

Regarding independent **claim 83**, the following underlined limitations were amended. However, the examiner was not able to find the support in the specification. Applicant should point out where the amended limitations can be found in the specification.

a selectively operable beamforming antenna comprising:

the processor configured to determine a relative location of the selected handover base station with respect to the beamforming antenna of the mobile unit based on information related to the detected sounding pulse, an

the beamforming antenna configured to continue the wireless communication of the mobile unit via the selected handover base station by forming a communication beam toward the selected handover base station based on the relative location of the selected handover base station

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made

to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 45, 59, 74, 83 and 85 rejected under 35 U.S.C. 103(a) as being unpatentable by **Watanabe et al. (6,834,192)** in view of **Jollota** (**2004/0142691**) and further in view of **Forssen et al. (5,615,409).**

1. Regarding **claim 45**, **Watanabe** teaches a method for handoff of a wireless communication with a mobile unit to a base station comprising (**Abstract and Fig. 1):**

- detecting by the base station the handover trigger event during the mobile unit's wireless communication via the first base station (C6 L33-45);
- transmitting an omnidirectional sounding pulse (inquiry message) from the mobile unit in response to a detected handover trigger the omnidirectional sounding pulse being detectable by the base station in order to establish wireless communication with the mobile unit (C6 L48-52);
- communicating information related to the detected sounding pulse to the interface by each base station detecting the sounding pulse (C6 L50-55);
- … selecting the second base station that detected the sounding pulse based on the communicated information (C8 L9-51); and
- continuing the mobile unit's wireless communication by the base station (C8 L49-51).

Although Watanabe does not explicitly teach a plurality of base stations in the selection step and the transmitting step, but it is known in the art of Bluetooth that a mobile device often sends out an inquiry signal and receives responses back from

multiple access points and one of the device/access point/BS is selected for communication.

In an analogous art, **Jollota** teaches in response to the transmission of an inquiry signal (omnidirectional) from the mobile ([0021]), multiple BSUs communicate their Received_MU commands to an interface PSC ([0022]). The PSC then compares these commands/responses and selects an optimal BSU ([0025], fig. 1 and 2). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine Watanabe's teaching of handoff and Jollota's teaching of selecting one among the many BS/BSUs that respond to the mobile's inquiry because this combination would allow the MS to have more choices in selecting the best BS to handover to. Watanabe, modified by Jollota, teaches a handover process where a base station receives a unique request information, i.e., an unique identification, from a mobile station for the handover.

However, Watanabe, modified by Jollota, does not show a base station having a beam forming antenna for detecting a mobile station for a handover with respect to the relative location of the mobile station to the base station.

In an analogous art, **Forssen** teaches a method of handover amongst base stations using smart antenna arrays (see the abstract, figures 2b and figure 4, disclosing a base station with a beamformer)**.** Forssen discloses a base station having a beam forming antenna for detecting a mobile station's relative location from an interface in response to a handover event and directing the antenna beams toward the detected location of the mobile (see the abstract, figure 8, col 4 lines 1-19, col 5 lines 39-55**).**

Thus **Forssen**'s teaching broadly reads on the step of receiving from an interface in response to detecting a detected handover trigger for a mobile unit a relative location of the mobile unit with respect to the beamforming antenna of the base station; directing beacon channels toward the mobile unit location to receive an omnidirectional sounding pulse.

Since Watanabe, Jollota and Forssen teach wireless communication system and method applicable in handover situations, it would have been obvious for one of ordinary skill in the art at the time of the invention to modify teachings of Watanabe, modified by Jollota, and to combine teachings of Forssen's teaching of directing the base station beam toward the detected/received relative location of the mobile station in response to a handover in order to reduce interference and system capacity (Forssen, Col 2 Lines 21-30).

2. Regarding **claim 59**, it is a system claim that corresponds to that of **claim 45**. Therefore, it is rejected for the same reason as claim 45.

3. Regarding **claim 74**, **Watanabe** teaches a method for handoff of a wireless communication conducted by a communicating mobile unit comprising (C27 and Abstract and Fig. 1 and 8):

- transmitting an omnidirectional sounding pulse from the communicating mobile unit during the wireless communication upon the occurrence of a triggering event, the omnidirectional sounding pulse being detectable by base station whose geographic coverage area includes the mobile unit in order to establish wireless communication with the mobile unit (block 216, Fig. 8, C27 L20-24);

- receiving a communication signal from base stations detecting the sounding pulse towards the mobile unit (C27 L24-29);
- selecting a handover base station … that detected the sounding pulse based on the communication signal received by the mobile unit (C27 L24-29); and continuing the wireless communication via the selected handover base station (C27 L40-48).

Although Watanabe does not explicitly teach a plurality of base stations in the selection step and the transmitting step, but it is known in the art of Bluetooth that a mobile device often sends out an inquiry signal and receives responses back from multiple access points and one of the device/access point/BS is selected for communication.

In an analogous art, **Jollota** teaches in response to the transmission of an inquiry signal (omnidirectional) from the mobile ([0021]), multiple BSUs communicate their Received_MU commands to an interface PSC ([0022]). The PSC then compares these commands/responses and selects an optimal BSU ([0025], fig. 1 and 2). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine Watanabe's teaching of handoff and Jollota's teaching of selecting one among the many BS/BSUs that respond to the mobile's inquiry because this combination would allow the MS to have more choices in selecting the best BS to handover to. Watanabe, modified by Jollota, teaches a handover process where a base station receives a unique request information, i.e., an unique identification, from a mobile station for the handover.

However, Watanabe, modified by Jollota, does not show a base station having a beam forming antenna for detecting a mobile station for a handover with respect to the relative location of the mobile station to the base station.

In an analogous art, **Forssen** teaches a method of handover amongst base stations using smart antenna arrays (see the abstract, figures 2b and figure 4, disclosing a base station with a beamformer). Forssen discloses determining a relative location of the selected handover base station with respect to the beamforming antenna of the mobile unit based on the information related to the detected sounding pulse (see the abstract, figure 8, col 4 lines 1-19, col 5 lines 39-55) and continuing the wireless communication of the mobile unit via the selected handover base station includes operating the mobile units beamforming antenna to form a communication beam toward the selected handover base station based on the relative location of the selected handover base station (see the abstract, figure 8, col 4 lines 1-19, col 5 lines 39-55).

Since Watanabe, Jollota and Forssen teach wireless communication system and method applicable in handover situations, it would have been obvious for one of ordinary skill in the art at the time of the invention to modify teachings of Watanabe, modified by Jollota, and to combine teachings of Forssen's teaching of directing the base station beam toward the detected/received relative location of the mobile station in response to a handover in order to reduce interference and system capacity (Forssen, Col 2 Lines 21-30).

11. Regarding claim **83**, **Watanabe, Jollota and Forssen** teach the mobile station that is used in the handoff method of claim 74. Therefore, it is rejected for the same

reasons as claim 74. **Watanabe** further teaches a mobile unit has an inherent transmitter configured to transmit an omnidirectional (antenna, Fig. 2) sounding pulse and an inherent receiver (46, Fig. 2) configured to receive communication beams from base stations; and an inherent processor configured to select a handover base station (46, Fig. 2) via which the mobile unit is to continue the wireless communication based on communication beams received by the mobile unit from base stations that detected the pulse transmitted by the mobile unit (see claim 74 above).

12. Regarding claim **85**, it claims a mobile unit, which corresponds to the method claim 69 previously addressed. Therefore, it is rejected for the same reasons as in previous claim 69.

Claim **69** rejected under 35 U.S.C. 103(a) as being unpatentable by **Watanabe, Jollota and Forssen** in view of **Velazquez et al. (US Patent No. 6,593,880).**

4. Regarding **claim 69**, **Watanabe, Jollota and Forssen** teach all the limitations of the method of claim **59**. but is silent that the mobile unit is equipped with a global positioning system (GPS) and the transmitting of an omnidirectional sounding pulse includes transmitting of mobile unit location information associated with the sounding pulse transmitted by the mobile unit and/or includes transmitting of identification information associated with the sounding pulse transmitted the mobile unit. In an analogous art, **Velazquez** teaches that the UE has a GPS (C8 L20-37). Therefore it would have been obvious for one of ordinary skill in the art at the time of the invention for to add Valazquez's GPS to Watanabe and Jollota's handoff method to speed up the location positioning of the handset and thus to promote a faster handoff process.

5. Claims **84 and 86-87** rejected under 35 U.S.C. 103(a) as being unpatentable by **Watanabe, Jollota and Forssen** in view of **Anderson et al.** (US Patent No. 5396541).

6. Regarding claim **84**, Watanabe, Jollota and Forssen teach all the limitations of the method of claim 83. They do not explicitly teach that the transmitting of an omnidirectional sounding pulse includes transmitting a subsequent sounding pulse of increased power by the mobile unit if handover does not occur within a predefined time period from its transmitting of an omnidirectional sounding pulse. However, Anderson teaches a method of adjusting the power to a higher or lower level if the mobile is far or close from the base stations respectively (Col. 9, lines 50-15). In addition, it is also well known in the field of communications that after a failed transmission, one of ordinary skill in the art may use back-off algorithm to resend the signal in a predefined period of time. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine Watanabe and Jollota's handoff method and Anderson's teaching of a increasing the signal power (if the mobile is far away from the base station) at a predefined period to increase the chance of a successful handoff.

7. Regarding claim **86**, **Watanabe, Jollota and Forssen** teach all the limitations of the method of claim 83 but does not teaches a mobile ID. In an analogous art, **Anderson** further teaches that the mobile unit is configured to transmit an omnidirectional sounding pulse that includes mobile unit identification information (the mobile responds to a poll message with its identification, Col. 12, lines 52-58). Therefore, one skill in the art would combine Blakeney and Velazquez's teaching of

handoff with Anderson's teaching of the mobile identification to make it easier to identify where the signal is coming from and thus facilitate the handoff process.

8. Regarding claim **87,** it claims a mobile unit, which corresponds to the method claim 57 previously addressed. Therefore, it is rejected for the same reasons as in previous claim 57.

9. Claims **47, 53-54, 61, 64, 70, 74 and 88** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Watanabe, Jollota and Forssen** in view of **Keskitalo** (US Patent No. 5893033).

10. Regarding **claim 47**, **Watanabe, Jollota and Forssen** teaches all the limitations of the method of claim **45** but is not explicit of receiving from an interface a command to sweep beacon channels over an arc. In an analogous art, Keskitalo teaches a step of determining a relative location of the mobile unit with respect to the beamforming antennas of base stations neighboring the first base station (Col. 9, lines 41-45) and commanding the neighboring base stations to sweep beacon channels over an arc encompassing the mobile unit location to receive the transmitted sounding pulse (Col. 9, lines 48-49 and Col. 9, lines 63-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the handover method to include the step of determining the mobile's location and sweep the channels over an arc to search for the best signal components as taught by **Keskitalo** (Col. 9, 14-16).

11. Regarding claim **53**, it is a combination of claims 45 and 47. Therefore, it is rejected for the same reasons as claims 45 and 47.

12. Regarding claim **54**, **Watanabe, Jollota, Forssen and Keshitalo** teach all the limitations of the method of claim **53** but is not explicit that Node B is configured to operate its antenna to form a communication beam that carries common channels that encompasses the relative location of a plurality of UEs so that the formed beam provides common channel service to a plurality of UEs. Nonetheless, it is a practical design system to service a plurality of UEs rather than a single one to increase capacity of the system. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to service multiple UEs to maximize system capacity.

13. Regarding **claims 61**, they are apparatus claims corresponding to the method claims number 47. Therefore, they are rejected for the same reasons as claim 47.

14. Regarding claim **64**, **Watanabe, Jollota and Forssen** teaches all the limitations of the method of claim **45** but is not explicit that Node B is configured to operate its antenna to form a communication beam that carries common channels that encompasses the relative location of a plurality of UEs so that the formed beam provides common channel service to a plurality of UEs. Nonetheless, it is a practical design system to service a plurality of UEs rather than a single one to increase capacity of the system. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to service multiple UEs to maximize system capacity.

15. Regarding claim **70**, it is an apparatus claim corresponding to the method claim number 55. Therefore, it is rejected for the same reasons as claim 55.

16. Regarding claim **74**, it is an apparatus claim corresponding to the combined method claims number 45 and 46. Therefore, it is rejected for the same set of reasons as claim 45 and 46.

17. Regarding claim **88** it claims a mobile unit, which corresponds to the method claim 55 previously addressed. Therefore, it is rejected for the same reasons as claim 55.

18. Claim **48, 62** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Watanabe, Jollota and Forssen** in view of **Bark et al.** (US Patent No. 6445917).

19. Regarding **claim 48**, **Watanabe, Jollota and Forssen** teaches all the limitations of the method of claim **45** but is not explicit that the radio network is a UMTS Terrestrial Radio Access Network (UTRAN), each base station is a Node B, the interface is a Radio Network Controller (RNC) and the mobile unit is a mobile User Equipment (UE); In an analogous art, **Bark** teaches a UMTS Terrestrial Radio Access Network (UTRAN) (**24**, see Figure 1A), each base station is a Node B (**28**), the interface is a Radio Network Controller (RNC) **26** and the mobile unit is a mobile User Equipment (3G terminology); the communicating information is between Node Bs and the RNC via an Iub or combination Iub/Iur interface (Col. 5, lines 44-45, and 3G standards); the second base station selection is performed by the RNC by selecting a second Node B (col. 8, lines 50-55); and the UE's communication continued via the second Node B is via a Uu interface (inherent). UMTS is a system used in the 3G which is gaining increasing popularity. Therefore, it would have been obvious to one of ordinary skill in the art at

the time of the invention to modify the handover method to also establish this handover method in the UMTS system to keep the network system up-to-date with the current technology.

20. Regarding claim **62,** it is an apparatus claim corresponding to the method claim number 48. Therefore, it is rejected for the same reasons as claim 48.

21. Claims **50, 63, 76, 80-82** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Watanabe, Jollota and Forssen** and **Bark et al.** (US Patent No. 6445917) in view of **Keskitalo** (US Patent No. 5893033).

22. Regarding claim **50, Watanabe, Jollota and Forssen** teach all the limitations of the method of claim 48. Forssen further teaches that each Node B has a selectively operable beamforming antenna, further comprising: determining a relative location of the UE unit with respect to the beamforming antennas of Node Bs neighboring the first Node B except for commanding the neighboring Node Bs to sweep beacon channels over an arc encompassing the mobile unit location to receive the transmitted sounding pulse. In an analogous art, **Keskitalo** teaches that each Node B has a selectively operable beamforming antenna, further comprising: determining a relative location of the UE unit with respect to the beamforming antennas of Node Bs neighboring the first Node B and commanding the neighboring Node Bs to sweep beacon channels over an arc encompassing the mobile unit location to receive the transmitted sounding pulse (Col. 9, lines 48-49 and Col. 9, lines 63-65). Therefore, it would have been obvious to

one of ordinary skill in the art at the time of the invention to modify the handover method to sweep the channels over an arc to search for the best signal components (Keskitalo, Col. 9, lines 14-16) in the 3G environment to make the network more interface-able with other networks.

23. Regarding claim **63,** it is an apparatus claim corresponding to the method claim number 49. Therefore, it is rejected for the same reasons as claim 49.

24. Regarding claim **76**, it is a combination of method claims 45, 46, and 48. Therefore, it is rejected for the same set of reasons as claim 45, 46 and 48.

25. Regarding claim **80, 81 and 82**, they are method claims that correspond to previous method claims of 55-57. Therefore, they are rejected for the same of reasons as claim 55-57.

26. Claim **51** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Watanabe, Jollota and Forssen** in view of **Bark et al.** (US Patent No. 6,445,917) further in view of **Velazquez et al.** (US Patent No. 6,593,880).

27. Regarding **claim 51**, **Watanabe, Jollota and Bark** teach all the limitations of the method of claim **48**. However, the combination fails to specifically teach the step of determining a relative location of the UE and directs the beam toward the UE to encompass the UE's relative location. In an analogous art, **Velazquez** teaches a step of determining a relative location of the UE with respect to the beamforming antenna of the

selected second Node B based on information related to the detected sounding pulse whereby the continuing of the UE's communication via the second Node B includes operating the selected Node B's antenna to form a communication beam for at least one dedicated channel covering a selected portion of the coverage area serviced by the second Node B that encompasses the determined relative location of the UE (Col. 7, ln 25-68, Col. 8, ln 25-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply **Watanabe , Jollota and Bark**'s teaching of the handover method in the UMTS system and Velazquez's teaching of locating the UE and directing the beam toward the UE to reduce the system's interference.

28. Claims 45, 59, 74, 83 are **further** rejected under 35 U.S.C. 103(a) as being unpatentable by **Watanabe et al. (6,834,192)** in view of **Jollota** (**2004/0142691**) and further in view of **Willingham et al. (6,240,290).**

29. Regarding **claim 45**, **Watanabe** teaches a method for handoff of a wireless communication with a mobile unit to a base station comprising (**Abstract and Fig. 1):**

- detecting by the base station the handover trigger event during the mobile unit's wireless communication via the first base station (C6 L33-45);
- transmitting an omnidirectional sounding pulse (inquiry message) from the mobile unit in response to a detected handover trigger the omnidirectional sounding pulse being detectable by the base station in order to establish wireless communication with the mobile unit (C6 L48-52);

- communicating information related to the detected sounding pulse to the interface by each base station detecting the sounding pulse (C6 L50-55);
- … selecting the second base station that detected the sounding pulse based on the communicated information (C8 L9-51); and
- continuing the mobile unit's wireless communication by the base station (C8 L49-51).

Although Watanabe does not explicitly teach a plurality of base stations in the selection step and the transmitting step, but it is known in the art of Bluetooth that a mobile device often sends out an inquiry signal and receives responses back from multiple access points and one of the device/access point/BS is selected for communication.

In an analogous art, **Jollota** teaches in response to the transmission of an inquiry signal (omnidirectional) from the mobile ([0021]), multiple BSUs communicate their Received_MU commands to an interface PSC ([0022]). The PSC then compares these commands/responses and selects an optimal BSU ([0025], fig. 1 and 2). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine Watanabe's teaching of handoff and Jollota's teaching of selecting one among the many BS/BSUs that respond to the mobile's inquiry because this combination would allow the MS to have more choices in selecting the best BS to handover to. Watanabe, modified by Jollota, teaches a handover process where a base station receives a unique request information, i.e., an unique identification, from a mobile station for the handover.

However, Watanabe, modified by Jollota, does not show a base station having a beam forming antenna for detecting a mobile station for a handover with respect to the relative location of the mobile station to the base station.

In an analogous art, **Willingham** teaches a method of handover amongst base stations using smart antenna arrays (see the abstract, Fig. 4 & 6). Willingham discloses the step of receiving from an interface a mobile unit a relative location of the mobile unit with respect to the beamforming antenna of the base station (C7 L25-35) in response to detecting a detected handover trigger(mobile depart to adjacent cell, C7 L21-26); directing beacon channels toward the mobile unit location to receive an omnidirectional sounding pulse (C7 L36-45).

Since Watanabe, Jollota and **Willingham** teach wireless communication system and method applicable in handover situations, it would have been obvious for one of ordinary skill in the art at the time of the invention to modify teachings of Watanabe, modified by Jollota, and to combine teachings of Willingham's teaching of directing the base station beam toward the detected/received relative location of the mobile station in response to a handover in order to reduce interference and system capacity (Willingham, Abstract Col 2 Lines 48-55).

30. Regarding **claim 59, 74, 83**, they are claims that have the same corresponding limitations as **claim 45**. Therefore, it is rejected for the same reason as claim 45.

Response to Arguments

Applicant's arguments with respect to claims 45, 47-48, 50-51, 53-54, 59, 61-64, 69-70, 74, 76, and 80-88 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG LAM whose telephone number is (571) 272-6497. The examiner can normally be reached on M - F 9 - 5:30 pm, Every Other Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Harper can be reached on (571) 272-7605. The fax phone number for the organization where this application or proceeding is assigned is (571) 272-6497.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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